DOCUMENT RESUME

ED 079 706 CS 000 664

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TITLE Technological Alternatives in Learning.
PUB DATE Apr 73
NOTE 13p.; Paper presented at the Annual Conference of the Western College Reading Assn. (6th, Albuquerque, April 12-14, 1973)

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Educational Development; *Educational Improvement; Educational Research; *Educational Technology; Reading Research; *Teacher Behavior

ABSTRACT

Facilitation of learning depends upon a synergistic relationship among administrators, instructors, and learners, each of whom responds to educational technology in one or more of the following alternative ways: (1) he is ignorant of technology; (2) he ignores technology; (3) he acknowledges the existence of technology but condemns it as mechanistic and inhumane; (4) he acknowledges the existence of technology, recognizes its potential, but avoids it as mysterious, complex, and unmanageable; (5) he accepts and uses technology uncritically; (6) he accepts and uses technology critically, imaginatively, and accountably; (7) he accepts, uses, and assists others in using technology critically, imaginatively, and accountably; or (8) he develops and improves technology. Exercising the more positive alternatives in educational technology can result in helping learners to learn more in less time with greater ease and confidence. (TO)

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Technological Alternatives in Learning

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by

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My mission in this paper is to help you become aware that your potential as a learning facilitator can be significantly increased as your knowledge and use of technology increases.

My goal in this paper is to explore with you not only what educational technology is, but also to present eight technological alternatives that each of us faces in our roles as learning facilitators.

My objectives for this paper are three-fold: Given a list of eight alternatives in a paper entitled "Technological Alternatives in Learning," the reader will be able to:

1) determine what alternative he or she is presently exercising
2) decide whether or not to explore one or more of the other alternatives
3) implement, within three months of this reading, one change in administrative, instructional, or learning alternatives to optimize the learning environment for college learners

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These are the mission, goal, and objectives that I have set for this presentation. They are somewhat presumptive--as all learning objectives are. They are, however, also well-intentioned.

Technological Alternatives in Learning

Before developing a list of technological alternatives in learning, let us define technology and educational technology. Galbraith (14, p.12) writing in The New Industrial State, defines technology as ". . . the systematic application of scientific and other organized knowledge to practical tasks." Ely, as chairman and editor of AECT Committee on Definition and Terminology (12,p.36)defines educational technology as:

> ". . . a field involved in the facilitation of human learning through the systematic identification, development, organization, and utilization of a full range of learning resources, and through the management of these processes."

This "facilitation of human learning" depends upon a synergistic relationship among administrators, instructors, and learners--each of whom can respond to educational technology in one or more of the following alternative ways:

1) be ignorant of technology

2) ignore technology

3) acknowledge the existence of technology but condemn it as mechanistic and inhumane

4) acknowledge the existence of technology, recognize its potential, but avoid it as mysterious, complex, and unmanageable

5) accept and use technology uncritically

6) accept and use technology critically, imaginatively, and accountably

7) accept, use, and assist others to use technology critically, imaginatively, accountably

8) develop and improve technology.

Let's examine each of these eight technological alternatives n learning.

Alternative #1: Be ignorant of technology. It does not seem possible that anyone who professes to be an educator could be ignorant of technology. We can, however, test this assumption by asking an educational administrator what he knows about MBO (29, 32) the OD process (5), the Delphi technique (18), PPBS (22), PERT (9), CAI (28), Information Utilities (35), or MIS (4,11).

We can further test this assumption by asking college faculty to discuss the educational contributions of Postlethwaite (40), Fred Keller (23), W. James Popham (37,38,39), Robert Mager (27), Bela Banathy (3), or Robert Weisgerber (45, 46).

We can test this assumption more specifically by asking college reading/study skills specialists to identify such programs as The Relevance of Sounds (10) and The Relevance of Words (36), or to distinguish between a Crowderian or Skinnerian text, or to define compressed speech (42,44) Cognitive mapping - the diagnostic procedure used by Oakland Community College (19), or the SR/SE - a diagnostic/prescriptive reading/study skills instrument (8).

Admittedly, there is an explosion of information. But we must manage it. We can manage it. Oettinger (33), predicting the revolutionary impact that educational technology will have in the year 2018, concludes his essay with this reminder:

> By opening wide the floodgates of information, technology has created, as it always does, both an opportunity and a threat. The remarkable machinery essential for making the most of it is where it has been for millenia - right above our noses.

Alternative #2: Ignore technology. This is easy to do if we absent ourselves from professional conferences and workshops. This is easy to do if we find excuses for not reading the professional literature. It is a natural attitude to take if we feel unchallenged by our roles as learning facilitators; if we feel smug about our instructional strategies; if we feel unconcerned about our pedagogical failures; or if we feel indifferent to the problems of our learners.

For those who ignore technology, let me draw your attention to a warning given by guest editor Robert Havens (17) in an issue of The Personnel and Guidance Journal that had as its theme: "Technology in Guidance." Havens' warning to his counseling colleagues is appropriate for us.

> Counselors must know how to communicate with the technological specialist, because technology will come to guidance. It must come. We need it. The important question is who will decide what it will do for people and to people. We must determine, in consultation with technologists, what programmatic applications technology will have in guidance. We must not let the technologists define our role.

Don Fuller (13) makes the same point in a book that is a minor classic in executive management: Manage or Be Managed.

Alternative #3: Acknowledge the existence of technology but condemn it as mechanistic and inhumane. Are those who espouse this alternative suggesting that what they do now is intuitive and humane? Is the lecture system justifiable when the professor repeats annually the same content to a captive audience who may not criticize either content or presentation? Are reading and study skills programs humane when they not only do not begin where the learner is but do not diagnose what his strengths and weaknesses are through surveys, tests, and personal interviews?

Four years ago, at the Second Annual Conference of this Association (7), I suggested some assumptions that, in my belief, were characteristic of a humanistic or learner-centered approach to college reading/study skills programs. Those assumptions have formed the rationale of Learning Assistance Systems and Programs at California State University, Long Beach--a system that attempts to manage technology in a human way--as the following opening paragraph from the Learning Assistance Center's official fact sheet indicates:

> Learning Assistance is a support service for students and faculty that attempts to help students learn more in less time with greater ease and confidence. It utilizes a systems approach. It is totally learner-centered with a diagnostic/prescriptive rationale that considers learning to be individualistic, mathemagenic, cybernetic, and personalized(6).

This human dimension in learning technology is being increasingly recognized. In the past two years, a number of major conferences have focused on this concern. At the most recent, a symposium held at Oklahoma Christian College, Dr. Nils Wessel, President of the Alfred Sloan Foundation (31), was reported to have affirmed that

> Instructional technology has something to contribute to the realization of any and all of the human values to which education is dedicated. The test is our own ingenuity and our own ability to wed the technology to the aspiration. In short, important though levels of academic achievements and performances are, they are hollow and meaningless indeed unless man's spirit is our first concern.

Alternative #4: Acknowledge the existence of learning technology, recognize its potential, but avoid it as mysterious, complex, and unmanageable. I see this attitude prevailing among many college instructors. It can be changed, however, by getting involved with

learning technology. Workshops, field trips, "hands on" experiences with computers, auto-tutors, recorders, and other equipment will dispel any apprehensions as to their mysteriousness, complexity, or manageability. A regular diet of learning technology literature--periodicals such as AV Communication Review, Audiovisual Instruction, Media and Methods, Educational Technology, Journal of Educational Technology, Training in Business and Industry, Journal of Programmed Instruction, and Journal of Educational Technology Systems--can open up new approaches to instruction and learning.

A weekend of intensive reading in some basic texts such as Gerlach and Ely's Teaching and Media (15), or Johnson and Johnson's Developing Individualized Instructional Material (21), or the monumental two volume work by the Commission on Instructional Technology, To Improve Learning (43), can excite the reluctant instructor to experiment with new instructional and learning strategies.

Alternative #5: Accept and use technology uncritically. For some instructors and administrators, each new technological change becomes a panacea to cure the problems of instruction and learning. Equipment and materials are frequently purchased without previewing or field testing them. Equipment and materials are frequently used without benefit of their accompanying study guide or field manuals.

Equipment and materials are discarded in favor of newer equipment and materials without any learner feedback or performance data.

For the instructor and administrator who want to use learning technology critically, tools do exist that can help in the selection and use of equipment and materials. In the field of adult basic education,

for example, a monthly informational abstracting service is available from the Adult Continuing Education Center at Montclair State College in New Jersey. Another agency, EPIE Institute, collects and synthesizes information on the performance characteristics of instructional materials, equipment, and systems. The periodical, Audiovisual Instruction, publishes a monthly EPIE report. Audiovisual Instruction also publishes up-to-date reviews of films, filmstrips, records, and tapes as part of an ongoing service of Multi-Media Reviews Index (30). One other film reviewing service, Landers Film Reviews, a Los Angeles service, gives comprehensive bibliographic film information and reviews of film content and quality of presentation. Audio Cardalog is a monthly recording review and appraisal service that evaluates over 400 records annually. Two major sources that can aid in selecting media are the Learning Directory (26), a seven volume index to 205,000 items in 47 media, and the ten NICEM indexes available from the University of Scuthern California. Instructors and Administrators can maintain currency in the latest media and materials by getting on the mailing lists of ERIC Clearinghouses in Adult Education (Syracuse University), Educational Media and Technology (Stanford University), Junior Colleges (UCLA), Tests, Measurement, and Evaluation (ETS), Reading and communication Skills (NCTE), or any of 16 other Educational Resources Information Centers.

Alternative #6: Accept and use technology critically, imaginatively, and accountably. This alternative can be restated as an educational maxim: "Adapt rather than adopt technology." Let me illustrate with six examples:

1. An English firm has produced packets of facsimile primary materials that illustrate a historical concept or event. These

packets, called Jackdaws (25), can be adapted for self-paced, independent learning by adding to the visuals a cassette on which the instructor guides the learner through the materials in the packet.

2. On every campus there are many silent filmstrips that can be revitalized and humanized by adding an up-to-date commentary by the instructor.
3. Commercial sound filmstrips can be adapted to special groups by substituting for the commercial cassette a language pattern and a voice that identify with groups such as Chicanos, Blacks, native Americans, or foreign students.
4. A special introduction or local color insert can be added to a commercial filmstrip or slide set by using a "U" Film Write-On Filmstrip Kit manufactured by Hudson Photographic Industries, Inc., or Write-On Slides by Kodak Company.
5. Overhead transparencies can be adapted for near-point use on a Technilite desk screen. The addition of a cassette to explain the visual creates an inexpensive audio-tutorial module.
6. Cassettes can be adapted for use with the partially sighted or blind students by converting them to compressed speech with a machine like the VOKOM-I Speech Compressor/Expander by PKM Corporation.

Alternative #7: Accept, use, and assist others to use technology critically, imaginatively, and accountably. We must share our resources, our ideas, our innovations, our successes and our failures as instructors and learning facilitators. B. Lamar Johnson, founder of the League for Innovation in

the Community College, said it so vividly in a League Newsletter (20), "Let's Steal from Each Other!" We need to visit each other and exchange ideas and materials. We need to develop a resources and information network in which we share both as developers and consumers. Such a network could save us time, energy, money, and personnel.

We are far from such an ideal. At the last WCRA Annual Conference, Deborah Osen (34) urged WCRA members to submit copies of instructional goals and objectives to the College Reading Instructional Objectives Depository at California State College, Fullerton's Institute for Reading. Goals and objectives received at the Depository were to be available to WCRA members. Since Osen's request, not one goal or objective has been received by the Depository.

Alternative #8: Be a developer and improver of the technology. If we are critical of the equipment and materials that are being developed commercially, if we feel that materials should be more relevant, more sophisticated, more vital, or more learner-centered, why don't we develop such materials? There are guidebooks (1,2,16,24,41) available that can help us to design systems and write programs. Then someone else can criticize our programs and go on to improve our improvement.

CONCLUSION

These are the eight alternatives I have posed for you. Technology, and the alternatives in learning it offers, can challenge us to become better learning facilitators.

I conclude this paper in the spirit that I began--presumptive but well-intentioned--charging you to meet the technological challenge in the following ways:

1. Be alert and aware. In spite of the information explosion, you can manage to stay informed. Make a management information plan. List the sources that you want to review regularly. Use a computer retrieval system such as "Dialog", the Lockheed Information Sciences Laboratory Service, or the Personalized Bibliographic Service in Santa Ana, California.
2. Be responsive. Find out what your learners think of their center, their program, your instructional strategies, the learning equipment and materials. Allow the learner to participate in setting goals and objectives.
3. Be open. Use anybody and everybody, anything and everything to help learners learn.
4. Be resourceful. Constantly adapt equipment, materials, and environments to your goals and objectives.
5. Be accountable. Squeeze every resource to the maximum. Before asking for more space, more people, more equipment, more materials, and more money, look at the utilization of your current facilities, personnel, equipment, and material.

Alertness, awareness, responsiveness, openness, resourcefulness, and accountability are all characteristics of learning facilitators who choose to master and exploit technology as positive alternatives in learning. Exercising these positive alternatives can result in helping "learners to learn more in less time with greater ease and confidence."

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